

CLAIMS

1. A nuclear medical diagnostic apparatus, comprising:
a radiation detector in a form of a single layer
including a plurality of semiconductor cells that (1) are
arranged in a matrix, (2) detect radiation separately, and (3)
output signals representing an energy of the radiation
separately;

a selection circuit which, in order to select, among
events wherein the radiation is detected, a specific event
wherein radiation derived from a radio-isotope injected into a
subject is detected and a total energy of not less than two
respective signals substantially simultaneously output from
not less than two semiconductor cells falls in a predetermined
energy window;

a position calculation circuit that calculates an
incidence position based on a position selected from positions
of said not less than two semiconductor cells;

a counting circuit configured to count the specific event
in association with the calculated incidence position; and

a circuit configured to generate a distribution of radio-
isotope in the subject on the basis of a counting result.

2. An apparatus according to claim 1, wherein said
position calculation circuit compares respective energies of
the not less than two respective signals in order to select
the position.

3. An apparatus according to claim 2, wherein said position calculation circuit selects, from the positions of said not less than two semiconductor cells, the position of one semiconductor cell that outputs a signal representing a minimum energy.

4. An apparatus according to claim 2, wherein said position calculation circuit selects the position of one of said not less than two semiconductor cells based on the respective energies of the not less than two respective signals.

5. An apparatus according to claim 2, wherein said position calculation circuit selects, from the positions of said not less than two semiconductor cells, a position of one semiconductor cell that outputs a signal representing a minimum energy in a first area, and a position of one semiconductor cell that outputs a signal representing a maximum energy in a second area.

6. An apparatus according to claim 1, wherein said selection circuit is configured to calculate time differences between a signal output from one of said plurality of semiconductor cells and signals output from remaining cells of said plurality of semiconductor cells.

7. A method for generating a distribution of a radio-isotope in a subject with a nuclear medical diagnostic apparatus including a radiation detector in a form of a single layer, the radiation detector having a plurality of semiconductor cells arranged in a matrix, comprising:

detecting radiation derived from the radio-isotope with the plurality of semiconductor cells that output respective signals;

comparing a total energy of not less than two respective signals output from not less than two semiconductor cells with a predetermined energy window; and

calculating an incident position of the radiation based on a position of only one of the not less than two respective signals output from the not less than two semiconductor cells.